

What is claimed is:

1 (new): A bicycle crank and pedal assembly comprising (i) a crank arm (2) with four cavities (6, 9, 3, 8), (ii) a plate (7) inside the first cavity (6), (iii) a bar (10) inside the second cavity (9), (iv) a shaft (5), one end fixed to a pedal (4) and the other end fixed to the plate (7), (vi) a pedal spindle (11), one end fixed to the bar (10) and coaxially mounted with the shaft (5), and (vii) a pedal (4), outside the crank arm (2) and fixed to one end of the shaft (5).

2 (new): The bicycle crank and pedal assembly in Claim 1, wherein the distance between the axes of the crank axle (1) and the pedal spindle (11) (i) increases from the minimum value to the maximum value in the first half of the power down stroke, (ii) remains at the maximum value in the second half of the power down stroke, (iii) decreases from the maximum value to the minimum value in the first half of the return upstroke, and (iv) remains at the minimum value in the second half of the return upstroke.

3 (new): The bicycle crank and pedal assembly in Claim 1, wherein a rotation of the pedal (4) about the pedal spindle (11) causes (i) the shaft (5) and the plate (7) to rotate by the same angle about the axis of the pedal spindle (11), (ii) the distance between the pedal spindle (11) and the crank axle (1) to increase in the first half of the power down stroke, and (iii) the distance between the pedal spindle (11) and the crank axle (1) to decrease in the first half of the return upstroke.